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TITLE: Mobile station loop-back signal processing

Detail Description Paragraph - DETX (61):

[0102] The illustrated configuration accommodates a type of loop-back useful in adapting **symbol**-rate combining for interference pre-cancellation at one or more network transmitters. **Symbol** streams S1, S2, . . . Sm destined for respective MSs 16--generically represented as MS(i)--are input to **matrix** pre-combiner 116, which is a linear **matrix** combiner operative at the **symbol** rate to produce **symbol**-rate combined values X1, X2, . . . XL for transmission by transmitters and antennas index 1 to n within transmission system 110. The L **symbol**-rate signals are spread with respective spreading codes 1 . . . L, which are not necessarily different, but may be any of the same, different, orthogonal and **non-orthogonal** codes. After spreading with the respective spreading codes, the outputs of the L spreaders are at a chip rate, which is in general an elevated rate compared to the underlying information **symbol** rate. The L spread signals may then be linearly combined using the chip-rate spreaders/combiners 118 to produce n combined outputs for transmission by respective transmitters 1 to n in transmission system 110.

Detail Description Paragraph - DETX (113):

[0152] Stepping through the above process in the context of FIG. 13, individual information **symbol** streams S1, S2, . . . Sm are intended for transmission to respective ones of the plurality of MSs 16, MS1, MS2, . . . MSm. The **symbol** streams are combined in interference pre-cancellation **matrix** pre-combiner 116 to produce mixed sample streams X1, X2, . . . XL, which are still at the **symbol** rate. Mixed sample Xk at instant i is denoted by Xk(i) and depends on S1(i) . . . Sm(i) and also on S1(i-1) . . . Sm(i-1) as well as S1(i+1) . . . Sm(i+1) and possibly earlier or later **symbols,** depending upon delay spread relative to **symbol** timing. Spreaders/combiners 118 then multiply the mixed sample streams by respective spread-spectrum codes for transmission to the MSs 16. The spread-spectrum codes may be orthogonal codes such as those selected from a Walsh code set scrambled with a common, multiplicative, complex scrambling sequence. **Non-orthogonal** spreading codes also may be used.